PROCESS AND REALITY

AN ESSAY IN COSMOLOGY

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CHAPTER I
SPECULATIVE PHILOSOPHY

SECTION I

[4] THIS course of lectures is designed as an essay in Speculative Philosophy. Its first task must be to define ‘speculative philosophy,’ and to defend it as a method productive of important knowledge.

Speculative Philosophy is the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted. By this notion of ‘interpretation’ I mean that everything of which we are conscious, as enjoyed, perceived, willed, or thought, shall have the character of a particular instance of the general scheme. Thus the philosophical scheme should be coherent, logical, and, in respect to its interpretation, applicable and adequate. Here ‘applicable’ means that some items of experience are thus interpretable, and ‘adequate’ means that there are no items incapable of such interpretation.

[5] ‘Coherence,’ as here employed, means that the fundamental ideas, in terms of which the scheme is developed, presuppose each other so that in isolation they are meaningless. This requirement does not mean that they are definable in terms of each other; it means that what is indefinable in one such notion cannot be abstracted from its relevance to the other notions. It is the ideal of speculative philosophy that its fundamental notions shall not seem capable of abstraction from each other. In other words, it is presupposed that no entity can be conceived in complete abstraction from the system of the universe, and that it is the business of speculative philosophy to exhibit this truth. This character is its coherence.

The term ‘logical’ has its ordinary meaning, including ‘logical’ consistency, or lack of contradiction, the definition of constructs in logical terms, the exemplification of general logical notions in specific instances, and the principles of inference. It will be observed that logical notions must themselves find their places in the scheme of philosophic notions.

It will also be noticed that this ideal of speculative philosophy has its rational side and its empirical side. The rational side is expressed by the terms ‘coherent’ and ‘logical.’ The empirical side is expressed by the terms ‘applicable’ and ‘adequate.’ But the two sides are bound together by clearing away an ambiguity which remains in the previous explanation of the term ‘adequate.’ The adequacy of the scheme over every item does not mean adequacy over such items as happen to have been considered. It

means that the texture of observed experience, as illustrating the philosophic scheme, is such that all related experience must exhibit the same texture. Thus the philosophic scheme should be ‘necessary,’ in the sense of bearing in itself its own warrant of warrant of universality throughout all experience, provided that we confine ourselves to that which communicates with immediate matter of fact. But what does not so communicate is [6] unknowable, and the unknowable is unknown;[1] and so this universality defined by ‘communication’ can suffice.

This doctrine of necessity in universality means that there is an essence to the universe which forbids relationships beyond itself, as a violation of its rationality. Speculative philosophy seeks that essence.

[1] This doctrine is a paradox. Indulging in a species of false modesty, ‘cautious’ philosophers undertake its definition.

SECTION II

Philosophers can never hope finally to formulate these metaphysical first principles. Weakness of insight and deficiencies of language stand in the way inexorably. Words and phrases must be stretched towards a generality foreign to their ordinary usage; and however such elements of language be stabilized as technicalities, they remain metaphors mutely appealing for an imaginative leap.

There is no first principle which is in itself unknowable, not to be captured by a flash of insight. But, putting aside the difficulties of language, deficiency in imaginative penetration forbids progress in any form other than that of an asymptotic approach to a scheme of principles, only definable in terms of the ideal which they should satisfy.

The difficulty has its seat in the empirical side of philosophy. Our datum is the actual world, including ourselves; and this actual world spreads itself for observation in the guise of the topic of our immediate experience. The elucidation of immediate experience is the sole justification for any though; and the starting-point for thought is the analytic observation of components of this experience. But we are not conscious of any clear-cut complete analysis of immediate experience, in terms of the various details which comprise its definiteness. We habitually observe by the method of difference. Sometimes we see an elephant, when present, is noticed. [7] Facility of observation depends on the fact that the object observed is important when present, and sometimes is absent.

The metaphysical first principles can never fail of exemplification. We can never catch the actual world taking a holiday from their sway. Thus, for the discovery of metaphysics, the method of pinning down thought to the strict systematization of detailed discrimination, already effected by antecedent observation, breaks down. This collapse of the method of rigid empiricism is not confined to metaphysics. It occurs whenever we seek the larger generalities. In natural science this rigid method is the Baconian method of induction, a method which, if consistently pursued, would have left science where it found it. What Bacon omitted was the play of a free imagination, controlled by the requirements of coherence and logic. The true method of discovery is like the flight of an aeroplane. It starts from the ground of particular observation; it makes a flight in the thin air of imaginative generalization; and it again lands for renewed observation rendered acute by rational interpretation. The reason for the success of this method of imaginative rationalization is that, when the method of difference fails, factors which are constantly present may yet be observed under the influence of imaginative thought. Such thought supplies the differences which the direct

observation lacks. It can even play with inconsistency; and can thus throw light on the consistent, and persistent, elements in experience by comparison with what in imagination is inconsistent with them. The negative judgment is the peak of mentality. But the conditions for the success of imaginative construction must be rigidly adhered to. In the first place, this construction must have its origin in the generalization of particular factors discerned in particular topics of human interest; for example, in physics, or in physiology, or in psychology, or in aesthetics, or in ethical beliefs, or in sociology, or in languages conceived as storehouses of human experience. In [8] this way the prime requisite, that anyhow there shall be some important application, is secured. The success of the imaginative experiment is always to be tested by the applicability of its results beyond the restricted locus from which it originated. In default of such extended application, a generalization started from physics, for example, remains merely an alternative expression of notions applicable to physics. The partially successful philosophic generalization will, if derived from physics, find applications in fields of experience beyond physics. It will enlighten observation in those remote fields, so that general principles can be discerned as in process of illustration, which in the absence of the imaginative generalization are obscured by their persistent exemplification.

Thus the first requisite is to proceed by the method of generalization so that certainly there is some application; and the test of some success is application beyond the immediate origin. In other words, some synoptic vision has been gained.

In this description of philosophic method, the term ‘philosophic generalization’ has meant ‘the utilization of specific notions, applying to a restricted group of facts, for the divination of the generic notions which apply to all facts.’

In its use of this method natural science has shown a curious mixture of rationalism and irrationalism. Its prevalent tone of thought has been ardently rationalistic within its own borders, and dogmatically irrational beyond those borders. In practice such an attitude tends to become a dogmatic denial that there are any factors in the world not fully expressible in terms of its own primary notions devoid of further generalization. Such a denial is the self-denial of thought.

The second condition for the success of imaginative construction is unflinching pursuit of the two rationalistic ideals, coherence and logical perfection.

Logical perfection does not here require any detailed [9] explanation. An example of its importance is afforded by the role of mathematics in the restricted field of natural science. The history of mathematics exhibits the generalization of special notions observed in particular instances. In any branches of mathematics, the notions

presuppose each other. It is a remarkable characteristic of the history of thought that branches of mathematics, developed under the pure imaginative impulse, thus controlled, finally receive their important application. Time may be wanted. Conic sections had to wait for eighteen hundred years. In more recent years, the theory of probability, the theory of tensors, the theory of matrices are cases in point.

The requirement of coherence is the great preservative of rationalistic sanity. But the validity of its criticism is not always admitted. If we consider philosophical controversies, we shall find that disputants tend to require coherence from their adversaries, and the grant dispensations to themselves. It has been remarked that a system of philosophy is never refuted; it is only abandoned. The reason is that logical contradictions, except as temporary slips of the mind – plentiful, though temporary – are the most gratuitous of errors; and usually they are trivial. Thus, after criticism, systems do not exhibit mere illogicalities. They suffer from inadequacy and incoherence. Failure to include some obvious elements of experience in the scope of the system is met by boldly denying the facts. Also while a philosophical system retains any charm of novelty, it enjoys a plenary indulgence for its failures in coherence. But after a system has acquired orthodoxy, and is taught with authority, it receives a sharper criticism. Its denials and its incoherences are found intolerable, and a reaction sets in.

Incoherence is the arbitrary disconnection of first principles. In modern philosophy Descartes' two kinds of substance, corporeal and mental, illustrate incoherence. There is, in Descartes' philosophy, no reason why there should not be a one-substance world, only corporeal, or [10] a one-substance world, only mental. According to Descartes, a substantial individual 'requires nothing but itself in order to exist.' Thus this system makes a virtue of its incoherence. But, on the other hand, the facts seem connected, while Descartes' system does not; for example, in the treatment of the body-mind problem. The Cartesian system obviously says something that is true. But its notions are too abstract to penetrate into the nature of things.

The attraction of Spinoza's philosophy lies in its modification of Descartes' position into greater coherence. He starts with one substance, *causa sui*, and considers its essential attributes and its individualized modes, i.e., the '*affectiones substantiae.*' The gap in the system is the arbitrary introduction of the 'modes.' And yet, a multiplicity of modes is a fixed requisite, if the scheme is to retain any direct relevance to the many occasions in the experienced world.

The philosophy of organism is closely allied to Spinoza's scheme of thought. But it differs by the abandonment of the subject-predicate forms of thought, so far as

concerns the presupposition that this form is a direct embodiment of the most ultimate characterization of fact. The result is that the ‘substance-quality’ concept is avoided; and that morphological description is replaced by description of dynamic process. Also Spinoza’s ‘modes’ now become the sheer actualities; so that, though analysis of them increases our understanding, it does not lead us to the discovery of any higher grade of reality. The coherence, which the system seeks to preserve, is the discovery that the process, or concrescence, of any one actual entity involves the other actual entities among its components. In this way the obvious solidarity of the world receives its explanation.

In all philosophic theory there is an ultimate which is actual in virtue of its accidents. It is only then capable of characterization through its accidental embodiments, and apart from these accidents is devoid of [11] actuality. In the philosophy of organism this ultimate is termed ‘creativity’; and God is its primordial, non-temporal accident. In monistic philosophies, Spinoza’s or absolute idealism, this ultimate is God, who is also equivalently termed ‘The Absolute.’ In such monistic schemes, the ultimate is illegitimately allowed a final, ‘eminent’ reality, beyond that ascribed to any of its accidents. IN this general position the philosophy of organism seems to approximate more to some strains of Indian, or Chinese, thought, than to western Asiatic, or European, thought. One side makes process ultimate; the other side makes fact ultimate.

SECTION III

In its turn every philosophy will suffer a deposition. But the bundle of philosophic systems expresses a variety of general truths about the universe, awaiting coordination and assignment of their various spheres of validity. Such progress in coordination is provided by the advance of philosophy; and in this scene philosophy has advanced from Plato onwards. According to this account of the achievement of rationalism, the chief error in philosophy is overstatement. The aim at generalization is sound, but the estimate of success is exaggerated. There are two main forms of such overstatement. One form is what I have termed, elsewhere[2], the 'fallacy of misplaced concreteness.' This fallacy consists in neglecting the degree of abstraction involved when an actual entity is considered merely so far as it exemplifies certain categories of thought. There are aspects of actualities which are simply ignored so long as we restrict thought to these categories. Thus the success of a philosophy is to be measured by its comparative avoidance of this fallacy, when thought is restricted within its categories.

The other form of overstatement consists in a false estimate of logical procedure in respect to certainty, and in respect to premises. Philosophy has been haunted by the unfortunate notion that its method is dogmatically to indicate premises which are severally clear, distinct, and [12] certain; and to erect upon those premises a deductive system of thought.

But the accurate expression of the final generalities is the goal of discussion and not its origin. Philosophy has been misled by the example of mathematics; and even in mathematics the statement of the ultimate logical principles is beset with difficulties, as yet insuperable.[3] The verification of a rationalistic scheme is to be sought in its general success, and not in the peculiar certainty, or initial clarity, of its first principles. In this connection the misuse of the *ex absurdo* argument has to be noted; much philosophical reasoning is vitiated by it. The only logical conclusion to be drawn, when a contradiction issues from a train of reasoning, is that at least one of the premises involved in the inference is false. It is rashly assumed without further question that the peccant premise can at once be located. In mathematics this assumption is often justified, and philosophers have been thereby misled. But in the absence of a well-defined categoreal scheme of entities, issuing in a satisfactory metaphysical system, every premise in a philosophical argument is under suspicion.

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[2] Cf. *Science and the Modern World*, Ch. III.

[3] Cf. *Principia Mathematica*, by Bertrand Russell and A. N. Whitehead, Vol. I, Introduction and Introduction to the Second Edition. These introductory discussions are practically due to Russell, and in the second edition wholly so.

Philosophy will not regain its proper status until the gradual elaboration of categoreal schemes, definitely stated at each stage of progress, is recognized as its proper objective. There may be rival schemes, inconsistent among themselves; each with its own merits and its own failures. It will then be the purpose of research to conciliate the differences. Metaphysical categories are not dogmatic statements of the obvious; they are tentative formulations of the ultimate generalities.

If we consider any scheme of philosophic categories as one complex assertion, and apply to it the logician's alternative, true or false, the answer must be that the scheme is false. The same answer must be given to a like ques- [13] tion respecting the existing formulated principles of any science.

The scheme is true with unformulated qualifications, exceptions, limitations, and new interpretations in terms of more general notions. We do not yet know how to recast the scheme into a logical truth. But the scheme is a matrix from which true propositions applicable to particular circumstances can be derived. We can at present only trust our trained instincts as to the discrimination of the circumstances in respect to which the scheme is valid.

The use of such a matrix is to argue from it boldly and with rigid logic. The scheme should therefore be stated with the utmost precision and definiteness, to allow of such argumentation. The conclusion of the argument should then be confronted with circumstances to which it should apply.

The primary advantage thus gained is that experience is not interrogated with the benumbing repression of common sense. The observation acquires an enhanced penetration by reason of the expectation evoked by the conclusion of the argument. The outcome from this procedure takes one of three forms: (i) the conclusion may agree with the observed facts; (ii) the conclusion may exhibit general agreement, with disagreement in detail; (iii) the conclusion may be in complete disagreement with the facts.

In the first case, the facts are known with more adequacy and the applicability of the system to the world has been elucidated. In the second case, criticisms of the observation of the facts and of the details of the scheme are both required. The history of thought shows that false interpretations of observed facts enter into the records of their observation. Thus both theory, and received notions as to fact, are in doubt. In the third case, a fundamental reorganization of theory is required either by way of limiting it to some special province, or by way of entire abandonment of its main categories of thought.

[14] After the initial basis of a rational life, with a civilized language, has been

laid, all productive thought has proceeded either by the poetic insight of artists, or by the imaginative elaboration of schemes of thought capable of utilization as logical premises. In some measure or other, progress is always a transcendence of what is obvious.

Rationalism never shakes off its status of an experimental adventure. The combined influences of mathematics and religion, which have so greatly contributed to the rise of philosophy, have also had the unfortunate effect of yoking it with static dogmatism. Rationalism is an adventure in the clarification of thought, progressive and never final. But it is an adventure in which even partial success has importance.

SECTION IV

The field of a special science is confined to one genus of facts, in the sense that no statements are made respecting facts which lie outside that genus. The very circumstance that a science has naturally arisen concerning a set of facts secures that facts of that type have definite relations among themselves which are very obvious to all mankind. The common obviousness of things arises when their explicit apprehension carries immediate importance for purposes of survival, or of enjoyment – that is to say, for purposes of 'being' and of 'well-being.' Elements in human experience, singled out in this way, are those elements concerning which language is copious and, within its limits, precise. The special sciences, therefore, deal with topics which lie open to easy inspection and are readily expressed by words.

The study of philosophy is a voyage towards the larger generalities. For this reason in the infancy of science, when the main stress lay in the discovery of the most general ideas usefully applicable to the subject-matter in question, philosophy was not sharply distinguished from science. To this day, a new science with any substantial novelty in its notions is considered to be in some way [15] peculiarly philosophical. In their later stages, apart from occasional disturbances, most sciences accept without question the general notions in terms of which they develop. The main stress is laid on the adjustment and the direct verification of more special statements. In such periods scientists repudiate philosophy; Newton, justly satisfied with his physical principles, disclaimed metaphysics.

The fate of Newtonian physics warns us that there is a development in scientific first principles, and that their original forms can only be saved by interpretations of meaning and limitations of their field of application – interpretations and limitations unsuspected during the first period of successful employment. One chapter in the history of culture is concerned with the growth of generalities. In such a chapter it is seen that the older generalities. In such a chapter it is seen that the older generalities, like the older hills, are worn down and diminished in height, surpassed by younger rivals.

Thus one aim of philosophy is to challenge the half-truths constituting the scientific first principles. The systematization of knowledge cannot be conducted in watertight compartments. All general truths condition each other; and the limits of their application cannot be adequately defined apart from their correlation by yet wider generalities. The criticism of principles must chiefly take the form of determining the proper meanings to be assigned to the fundamental notions of the various sciences,

when these notions are considered in respect to their status relatively to each other. The determination of this status requires a generality transcending any special subject-matter.

If we may trust the Pythagorean tradition, the rise of European philosophy was largely promoted by the development of mathematics into a science of abstract generality. But in its subsequent development the method of philosophy has also been vitiated by the example of mathematics. The primary method of mathematics is deduction; the primary method of philosophy is descrip- [16] tive generalization. Under the influence of mathematics, deduction has been foisted onto philosophy as its standard method, instead of taking its true place as an essential auxiliary mode of verification whereby to test the scope of generalities. This mis-apprehension of philosophic method has veiled the very considerable success of philosophy in providing generic notions which add lucidity to our apprehension of the facts of experience. The depositions of Plato, Aristotle, Thomas Aquinas, Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant, Hegel, merely mean that ideas which these men introduced into the philosophic tradition must be construed with limitations, adaptations, and inversions, either unknown to them, or even explicitly repudiated by them. A new idea introduces a new alternative; and we are not less indebted to a thinker when we adopt the alternative which he discarded. Philosophy never reverts to its old position after the shock of a great philosopher.

SECTION V

Every science must devise its own instruments. The tool required for philosophy is language. Thus philosophy redesigns language in the same way that, in a physical science, pre-existing appliances are redesigned. It is exactly at this point that the appeal to facts is a difficult operation. This appeal is not solely to the expression of the facts in current verbal statements. The adequacy of such sentences is the main question at issue. It is true that the general agreement of mankind as to experienced facts is best expressed in language. But the language of literature breaks down precisely at the task of expressing in explicit form the larger generalities – the very generalities which metaphysics seeks to express.

The point is that every proposition refers to a universe exhibiting some general systematic metaphysical character. Apart from this background, the separate entities which go to form the proposition, and the proposition as a whole, are without determinate character. Nothing [17] has been defined, because every definite entity requires a systematic universe to supply its requisite status. Thus every proposition proposing a fact must, in its complete analysis, propose the general character of the universe required for that fact. There are no self-sustained facts, floating in nonentity. This doctrine, of the impossibility of tearing a proposition from its systematic context in the actual world, is a direct consequence of the fourth and the twentieth of the fundamental categoreal explanations which we shall be engaged in expanding and illustrating. A proposition can embody partial truth because it only demands a certain type of systematic environment, which is presupposed in its meaning. It does not refer to the universe in all its detail.

One practical aim of metaphysics is the accurate analysis of propositions; not merely of metaphysical propositions, but of quite ordinary propositions such as ‘There is beef for dinner today,’ and ‘Socrates is mortal.’ The one genus of facts which constitutes the field of some special science requires some common metaphysical presupposition respecting the universe. It is merely credulous to accept verbal phrases as adequate statements of propositions. The distinction between verbal phrases and complete propositions is one of the reasons why the logicians’ rigid alternative, ‘true or false,’ is so largely irrelevant for the pursuit of knowledge.

The excessive trust in linguistic phrases has been the well-known reason vitiating so much of the philosophy and physics among the Greeks and among the mediaeval thinkers who continued the Greek traditions. For example John Stuart Mill writes:

> They [the Greeks] had great difficulty in distributing between things which their language confounded, or in putting mentally together things which it distinguished, and could hardly combine the objects in nature into any classes but those which were made for them by the popular phrases of their own country; or at least could not help fancying those classes to be natural, and all others arbitrary and artificial. Ac- [18] cordingly, scientific investigation among the Greek schools of speculation and their followers in the Middle Ages, was little more than a mere sifting and analysing of the notions attached to common language. They thought that by determining the meaning of words they could become acquainted with facts.[4]

Mill then proceeds to quote from Whewell[5] a paragraph illustrating the same weakness of Greek thought.

But neither Mill, nor Whewell, tracks this difficulty about language down to its sources. They both presuppose that language does enunciate well-defined propositions. This is quite untrue. Language is thoroughly indeterminate, by reason of the fact that every occurrence presupposes some systematic type of environment.

For example, the word 'Socrates,' referring to the philosopher, in one sentence may stand for an entity presupposing a more closely defined background than the word 'Socrates,' with the same reference, in another sentence. The word 'mortal' affords an analogous possibility. A precise language must await a completed metaphysical knowledge.

The technical language of philosophy represents attempts of various schools of thought to obtain explicit expression of general ideas presupposed by the facts of experience. It follows that any novelty in metaphysical doctrines exhibits some measure of disagreement with statements of the facts to be found in current philosophical literature. The extent of disagreement measures the extent of metaphysical divergence. It is, therefore, no valid criticism on one metaphysical school to point out that its doctrines do not follow from the verbal expression of the facts accepted by another school. The whole contention is that the doctrines in question supply a closer approach to fully expressed propositions.

The truth itself is nothing else than how the composite natures of the organic actualities of the world obtained ade- [19] quate representation in the divine nature. Such representations compose the 'consequent nature' of God, which evolves in its

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[4] *Logic*, Book V, Ch. III.

[5] Cf. Whewell's *History of the Inductive Sciences*.

relationship to the evolving world without derogation to the eternal completion of its primordial conceptual nature. In this way the 'ontological principle' is maintained – since there can be no determinate truth, correlating impartially the partial experiences of many actual entities, apart from one actual entity to which it can be referred. The reaction of the temporal world on the nature of God is considered subsequently in Part V: it is there termed 'the consequent nature of God.'

Whatever is found in 'practice' must lie within the scope of the metaphysical description. When the description fails to include the 'practice,' the metaphysics is inadequate and requires revision. There can be no appeal to practice to supplement metaphysics, so long as we remain contented with our metaphysical doctrines. Metaphysics is nothing but the description of the generalities which apply to all the details of practice.

No metaphysical system can hope entirely to satisfy these pragmatic tests. At the best such a system will remain only an approximation to the general truths which are sought. In particular, there are no precisely stated axiomatic certainties from which to start. There is not even the language in which to frame them. The only possible procedure is to start from verbal expressions which, when taken by themselves with the current meaning of their words, are ill-defined and ambiguous. These are not premises to be immediately reasoned from apart from elucidation by further discussions; they are endeavours to state general principles which will be exemplified in the subsequent description of the facts of experience. This subsequent elaboration should elucidate the meanings to be assigned to the words and phrases employed. Such meanings are incapable of accurate apprehension apart from a correspondingly accurate apprehension of the metaphysical background which the [20] universe provides for them. But no language can be anything but elliptical, requiring a leap of the imagination to understand its meaning in its relevance to immediate experience. The position of metaphysics in the development of culture cannot be understood without remembering that no verbal statement is the adequate expression of a proposition.

An old established metaphysical system gains a false air of adequate precision from the fact that its words and phrases have passed into current literature. Thus propositions expressed in its language are more easily correlated to our flitting intuitions into metaphysical truth. When we trust these verbal statements and argue as though they adequately analysed meaning, we are led into difficulties which take the shape of negations of what in practice is presupposed. But when they are proposed as first principles they assume an unmerited air of sober obviousness. Their defect is that the true propositions which they do express lose their fundamental character when

subjected to adequate expression. For example consider the type of propositions such as ‘The grass is green,’ and ‘The whale is big.’ This subject-predicate form of statement seems so simple, leading straight to a metaphysical first principle; and yet in these examples it conceals such complex, diverse meanings.

SECTION VI

It has been an objection to speculative philosophy that it is overambitious. Rationalism, it is admitted, is the method by which advance is made within the limits of particular sciences. It is, however, held that this limited success must not encourage attempts to frame ambitious schemes expressive of the general nature of things.

One alleged justification of this criticism is ill-success: European thought is represented as littered with metaphysical systems, abandoned and un-reconciled.

Such an assertion tacitly fastens upon philosophy the old dogmatic test. The same criterion would fasten ill- [21] success upon science. We no more retain the physics of the seventeenth century than we do the Cartesian philosophy of that century. Yet within limits, both systems express important truths. Also we are beginning to understand the wider categories which define their limits of correct application. Of course, in that century, dogmatic views held sway; so that the validity both of the physical notions, and of the Cartesian notions, was misconceived. Mankind never quite knows what it is after. When we survey the history of thought, and likewise the history of practice, we find that one idea after another is tried out, its limitations defined, and its core of truth elicited. In application to the instinct for the intellectual adventures demand by particular epochs, there is much truth in Augustine's rhetorical phrase, *Securus judicat orbis terrarium*. At the very least, men do what they can in the way of systematization, and in the event achieve something. The proper test is not that of finality, but of progress.

But the main objection, dating from the sixteenth century and receiving final expression from Francis Bacon, is the uselessness of philosophic speculation. The position taken by this objection is that we ought to describe detailed matter of fact, and elicit the laws with a generality strictly limited to the systematization of these described details. General interpretation, it is held, has no bearing upon this procedure; and thus any system of general interpretation, be it true or false, remains intrinsically barren. Unfortunately for this objection, there are no brute, self-contained matters of fact, capable of being understood apart from interpretation as an element in a system. Whenever we attempt to express the matter of immediate experience, we find that its understanding leads us beyond itself, to its contemporaries, to its past, to its future, and to the universals in terms of which its definiteness is exhibited. But such universals, by their very character of universality, embody the potentiality of other facts with variant types of definiteness. Thus [22] the understanding of the immediate brute fact requires its metaphysical interpretation as an item in a world with some systematic relation to it.

When thought comes upon the scene, it finds the interpretations as matters of practice. Philosophy does not initiate interpretations. Its search for a rationalistic scheme is the search for more adequate criticism, and for more adequate justification, of the interpretations which we perforce employ. Our habitual experience is a complex of failure and success in the enterprise of interpretation. If we desire a record of uninterpreted experience, we must ask a stone to record its autobiography. Every scientific memoir in its record of the 'facts' is shot through and through with interpretation. The methodology of rational interpretation is the product of the fitful vagueness of consciousness. Elements which shine with immediate distinctness, in some circumstances, retire into penumbral shadow in other circumstances, and into black darkness on other occasions. And yet all occasions proclaim themselves as actualities within the flux of a solid world, demanding a unity of interpretation.

Philosophy is the self-correction by consciousness of its own initial excess of subjectivity. Each actual occasion contributes to the circumstances of its origin additional formative elements deepening its own peculiar individuality. Consciousness is only the last and greatest of such elements by which the selective character of the individual obscures the external totality from which it originates and which it embodies. An actual individual, of such higher grade, has truck with the totality of things by reason of its sheer actuality; but it has attained its individual depth of being by a selective emphasis limited to its own purposes. The task of philosophy is to recover the totality obscured by the selection. It replaces in rational experience what has been submerged in the higher sensitive experience and has been sunk yet deeper by the initial operations of consciousness itself. The selectiveness of individual experience is moral so far as it con- [23] forms to the balance of importance disclosed in the rational vision; and conversely the conversion of the intellectual insight into an emotional force corrects the sensitive experience in the direction of morality. The correction is in proportion to the rationality of the insight.

Morality of outlook is inseparably conjoined with generality of outlook. The antithesis between the general good and the individual interest can be abolished only when the individual is such that its interest is the general good, thus exemplifying the loss of the minor intensities in order to find them again with finer composition in a wider sweep of interest.

Philosophy frees itself from the taint of ineffectiveness by its close relations with religion and with science, natural and sociological. It attains its chief importance by fusing the two, namely, religion and science, into one rational scheme of thought. Religion should connect the rational generality of philosophy with the emotions and

purposes springing out of existence in a particular society, in a particular epoch, and conditioned by particular antecedents. Religion is the translation of general ideas into particular thoughts, particular emotions, and particular purposes; it is directed to the end of stretching individual interest beyond its self-defeating particularity. Philosophy finds religion, and modifies it; and conversely religion is among the data of experience which philosophy must weave into its own scheme. Religion is an ultimate craving to infuse into the insistent particularity of emotion that non-temporal generality which primarily belongs to conceptual thought alone. In the higher organisms the differences of tempo between the mere emotions and the conceptual experiences produce a life-tedium, unless this supreme fusion has been effected. The two sides of the organism require a reconciliation in which emotional experiences illustrate a conceptual justification, and conceptual experiences find an emotional illustration.

This demand for an intellectual justification of brute experience has also been the motive power in the advance of European science. In this sense scientific interest is only a variant form of religious interest. Any survey of the scientific devotion to 'truth,' as an ideal, will confirm this statement. There is, however, a grave divergence between science and religion in respect to the phases of individual experience with which they are concerned. Religion is centered upon the harmony of rational thought with the sensitive reaction to the percepta from which experience originates. Science is concerned with the harmony of rational thought with the percepta themselves. When science deals with emotions, the emotions in question are percepta and not immediate passions – other people's emotion and not our own; at least our own in recollection, and not in immediacy. Religion deals with the formation of the experiencing subject; whereas science deals with the objects, which are the data forming the primary phase in this experience. The subject originates from, and amid, given conditions; science conciliates thought with this primary matter of fact; and religion conciliates the thought involved in the process with the sensitive reaction involved in that same process. The process is nothing else than the experiencing subject itself. In this explanation it is presumed that an experiencing subject is one occasion of sensitive reaction to an actual world. Science finds religious experiences among its percepta; and religion finds scientific concepts among the conceptual experiences to be fused with particular sensitive reactions.

The conclusion of this discussion is, first, the assertion of the old doctrine that breadth of thought reacting with intensity of sensitive experience stands out as an ultimate claim of existence; secondly, the assertion that empirically the development of self-justifying thoughts has been achieved by the complex process of generalizing from

particular topics, of imaginatively schematizing the generalizations, and finally by renewed comparison [25] of the imagined scheme with the direct experience to which it should apply.

There is no justification for checking generalization at any particular stage. Each phase of generalization exhibits its own peculiar simplicities which stand out just at that stage, and at no other stage. There are simplicities connected with the motion of a bar of steel which are obscured if we refuse to abstract from the individual molecules; and there are certain simplicities concerning the behaviour of men which are obscured if we refuse to abstract from the individual peculiarities of particular specimens. In the same way, there are certain general truths, about the actual things in the common world of activity, which will be obscured when attention is confined to some particular detailed mode of considering them. These general truths, involved in the meaning of every particular notion respecting the actions of things, are the subject-matter for speculative philosophy.

Philosophy destroys its usefulness when it indulges in brilliant feats of explaining away. It is then trespassing with the wrong equipment upon the field of particular sciences. Its ultimate appeal is to the general consciousness of what in practice we experience. Whatever thread of presupposition characterizes social expression throughout the various epochs of rational society must find its place in philosophic theory. Speculative boldness must be balanced by complete humility before logic, and before fact. It is a disease of philosophy when it is neither bold nor humble, but merely a reflection of the temperamental presuppositions of exceptional personalities.

Analogously, we do not trust any recasting of scientific theory depending upon a single performance of an aberrant experiment, unrepeated. The ultimate test is always widespread, recurrent experience; and the more general the rationalistic scheme, the more important is the final appeal.

The useful function of philosophy is to promote the [26] most general systematization of civilized thought. There is a constant reaction between specialism and common sense. It is the part of the special sciences to modify common sense. Philosophy is the welding of imagination and common sense into a restraint upon specialists, and also into an enlargement of their imaginations. By providing the generic notions philosophy should make it easier to conceive the infinite variety of specific instances which rest unrealized in the womb of nature.